



IFWO

**RAW SEQUENCE LISTING**  
 PATENT APPLICATION: **US/10/817,334**

DATE: 08/31/2004  
 TIME: 15:03:51

Input Set : **A:\-1310-1.app**  
 Output Set: **N:\CRF4\08312004\J817334.raw**

3 <110> APPLICANT: Hammock, Bruce D.  
 4 Kim, In-Hae  
 5 Morrisseau, Christophe  
 6 Watanabe, Takaho  
 7 Newman, John W.  
 8 The Regents of the University of California  
 10 <120> TITLE OF INVENTION: Improved Inhibitors for the Soluble Epoxide Hydrolase  
 12 <130> FILE REFERENCE: 02307W-131010US  
 14 <140> CURRENT APPLICATION NUMBER: US 10/817,334  
 15 <141> CURRENT FILING DATE: 2004-04-02  
 17 <150> PRIOR APPLICATION NUMBER: US 60/460,559  
 18 <151> PRIOR FILING DATE: 2003-04-03  
 20 <160> NUMBER OF SEQ ID NOS: 4  
 22 <170> SOFTWARE: PatentIn Ver. 2.1  
 24 <210> SEQ ID NO: 1  
 25 <211> LENGTH: 555  
 26 <212> TYPE: PRT  
 27 <213> ORGANISM: Homo sapiens  
 29 <220> FEATURE:  
 30 <223> OTHER INFORMATION: human soluble epoxide hydrolase (sEH)  
 32 <400> SEQUENCE: 1  
 33 Met Thr Leu Arg Ala Ala Val Phe Asp Leu Asp Gly Val Leu Ala Leu  
 34 1 5 10 15  
 36 Pro Ala Val Phe Gly Val Leu Gly Arg Thr Glu Glu Ala Leu Ala Leu  
 37 20 25 30  
 39 Pro Arg Gly Leu Leu Asn Asp Ala Phe Gln Lys Gly Pro Glu Gly  
 40 35 40 45  
 42 Ala Thr Thr Arg Leu Met Lys Gly Glu Ile Thr Leu Ser Gln Trp Ile  
 43 50 55 60  
 45 Pro Leu Met Glu Glu Asn Cys Arg Lys Cys Ser Glu Thr Ala Lys Val  
 46 65 70 75 80  
 48 Cys Leu Pro Lys Asn Phe Ser Ile Lys Glu Ile Phe Asp Lys Ala Ile  
 49 85 90 95  
 51 Ser Ala Arg Lys Ile Asn Arg Pro Met Leu Gln Ala Ala Leu Met Leu  
 52 100 105 110  
 54 Arg Lys Lys Gly Phe Thr Thr Ala Ile Leu Thr Asn Thr Trp Leu Asp  
 55 115 120 125  
 57 Asp Arg Ala Glu Arg Asp Gly Leu Ala Gln Leu Met Cys Glu Leu Lys  
 58 130 135 140  
 60 Met His Phe Asp Phe Leu Ile Glu Ser Cys Gln Val Gly Met Val Lys  
 61 145 150 155 160  
 63 Pro Glu Pro Gln Ile Tyr Lys Phe Leu Leu Asp Thr Leu Lys Ala Ser  
 64 165 170 175



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66 Pro Ser Glu Val Val Phe Leu Asp Asp Ile Gly Ala Asn Leu Lys Pro  
67 180 185 190  
69 Ala Arg Asp Leu Gly Met Val Thr Ile Leu Val Gln Asp Thr Asp Thr  
70 195 200 205  
72 Ala Leu Lys Glu Leu Glu Lys Val Thr Gly Ile Gln Leu Leu Asn Thr  
73 210 215 220  
75 Pro Ala Pro Leu Pro Thr Ser Cys Asn Pro Ser Asp Met Ser His Gly  
76 225 230 235 240  
78 Tyr Val Thr Val Lys Pro Arg Val Arg Leu His Phe Val Glu Leu Gly  
79 245 250 255  
81 Ser Gly Pro Ala Val Cys Leu Cys His Gly Phe Pro Glu Ser Trp Tyr  
82 260 265 270  
84 Ser Trp Arg Tyr Gln Ile Pro Ala Leu Ala Gln Ala Gly Tyr Arg Val  
85 275 280 285  
87 Leu Ala Met Asp Met Lys Gly Tyr Gly Glu Ser Ser Ala Pro Pro Glu  
88 290 295 300  
90 Ile Glu Glu Tyr Cys Met Glu Val Leu Cys Lys Glu Met Val Thr Phe  
91 305 310 315 320  
93 Leu Asp Lys Leu Gly Leu Ser Gln Ala Val Phe Ile Gly His Asp Trp  
94 325 330 335  
96 Gly Gly Met Leu Val Trp Tyr Met Ala Leu Phe Tyr Pro Glu Arg Val  
97 340 345 350  
99 Arg Ala Val Ala Ser Leu Asn Thr Pro Phe Ile Pro Ala Asn Pro Asn  
100 355 360 365  
102 Met Ser Pro Leu Glu Ser Ile Lys Ala Asn Pro Val Phe Asp Tyr Gln  
103 370 375 380  
105 Leu Tyr Phe Gln Glu Pro Gly Val Ala Glu Ala Glu Leu Glu Gln Asn  
106 385 390 395 400  
108 Leu Ser Arg Thr Phe Lys Ser Leu Phe Arg Ala Ser Asp Glu Ser Val  
109 405 410 415  
111 Leu Ser Met His Lys Val Cys Glu Ala Gly Gly Leu Phe Val Asn Ser  
112 420 425 430  
114 Pro Glu Glu Pro Ser Leu Ser Arg Met Val Thr Glu Glu Glu Ile Gln  
115 435 440 445  
117 Phe Tyr Val Gln Gln Phe Lys Lys Ser Gly Phe Arg Gly Pro Leu Asn  
118 450 455 460  
120 Trp Tyr Arg Asn Met Glu Arg Asn Trp Lys Trp Ala Cys Lys Ser Leu  
121 465 470 475 480  
123 Gly Arg Lys Ile Leu Ile Pro Ala Leu Met Val Thr Ala Glu Lys Asp  
124 485 490 495  
126 Phe Val Leu Val Pro Gln Met Ser Gln His Met Glu Asp Trp Ile Pro  
127 500 505 510  
129 His Leu Lys Arg Gly His Ile Glu Asp Cys Gly His Trp Thr Gln Met  
130 515 520 525  
132 Asp Lys Pro Thr Glu Val Asn Gln Ile Leu Ile Lys Trp Leu Asp Ser  
133 530 535 540  
135 Asp Ala Arg Asn Pro Pro Val Val Ser Lys Met  
136 545 550 555  
139 <210> SEQ ID NO: 2

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140 <211> LENGTH: 554  
141 <212> TYPE: PRT  
142 <213> ORGANISM: Rattus norvegicus  
144 <220> FEATURE:  
145 <223> OTHER INFORMATION: rat soluble epoxide hydrolase (sEH)  
147 <400> SEQUENCE: 2  
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151 Pro Ser Ile Ala Gly Val Leu Arg His Thr Glu Glu Ala Leu Ala Leu  
152 20 25 30  
154 Pro Arg Asp Phe Leu Leu Gly Ala Phe Gln Met Lys Phe Pro Glu Gly  
155 35 40 45  
157 Pro Thr Glu Gln Leu Met Lys Gly Lys Ile Thr Phe Ser Gln Trp Val  
158 50 55 60  
160 Pro Leu Met Asp Glu Ser Cys Arg Lys Ser Ser Lys Ala Cys Gly Ala  
161 65 70 75 80  
163 Ser Leu Pro Glu Asn Phe Ser Ile Ser Glu Ile Phe Ser Gln Ala Met  
164 85 90 95  
166 Ala Ala Arg Ser Ile Asn Arg Pro Met Leu Gln Ala Ala Ala Leu  
167 100 105 110  
169 Lys Lys Lys Gly Phe Thr Thr Cys Ile Val Thr Asn Asn Trp Leu Asp  
170 115 120 125  
172 Asp Ser Asp Lys Arg Asp Ile Leu Ala Gln Met Met Cys Glu Leu Ser  
173 130 135 140  
175 Gln His Phe Asp Phe Leu Ile Glu Ser Cys Gln Val Gly Met Ile Lys  
176 145 150 155 160  
178 Pro Glu Pro Gln Ile Tyr Lys Phe Val Leu Asp Thr Leu Lys Ala Lys  
179 165 170 175  
181 Pro Asn Glu Val Val Phe Leu Asp Asp Phe Gly Ser Asn Leu Lys Pro  
182 180 185 190  
184 Ala Arg Asp Met Gly Met Val Thr Ile Leu Val Arg Asp Thr Ala Ser  
185 195 200 205  
187 Ala Leu Arg Glu Leu Glu Lys Val Thr Gly Thr Gln Phe Pro Glu Ala  
188 210 215 220  
190 Pro Leu Pro Val Pro Cys Ser Pro Asn Asp Val Ser His Gly Tyr Val  
191 225 230 235 240  
193 Thr Val Lys Pro Gly Ile Arg Leu His Phe Val Glu Met Gly Ser Gly  
194 245 250 255  
196 Pro Ala Ile Cys Leu Cys His Gly Phe Pro Glu Ser Trp Phe Ser Trp  
197 260 265 270  
199 Arg Tyr Gln Ile Pro Ala Leu Ala Gln Ala Gly Phe Arg Val Leu Ala  
200 275 280 285  
202 Ile Asp Met Lys Gly Tyr Gly Asp Ser Ser Ser Pro Pro Glu Ile Glu  
203 290 295 300  
205 Glu Tyr Ala Met Glu Leu Leu Cys Glu Glu Met Val Thr Phe Leu Asn  
206 305 310 315 320  
208 Lys Leu Gly Ile Pro Gln Ala Val Phe Ile Gly His Asp Trp Ala Gly  
209 325 330 335  
211 Val Leu Val Trp Asn Met Ala Leu Phe His Pro Glu Arg Val Arg Ala

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212 340 345 350  
 214 Val Ala Ser Leu Asn Thr Pro Leu Met Pro Pro Asn Pro Glu Val Ser  
 215 355 360 365  
 217 Pro Met Glu Val Ile Arg Ser Ile Pro Val Phe Asn Tyr Gln Leu Tyr  
 218 370 375 380  
 220 Phe Gln Glu Pro Gly Val Ala Glu Ala Glu Leu Glu Lys Asn Met Ser  
 221 385 390 395 400  
 223 Arg Thr Phe Lys Ser Phe Phe Arg Thr Ser Asp Asp Met Gly Leu Leu  
 224 405 410 415  
 226 Thr Val Asn Lys Ala Thr Glu Met Gly Ile Leu Val Gly Thr Pro  
 227 420 425 430  
 229 Glu Asp Pro Lys Val Ser Lys Ile Thr Thr Glu Glu Glu Ile Glu Tyr  
 230 435 440 445  
 232 Tyr Ile Gln Gln Phe Lys Lys Ser Gly Phe Arg Gly Pro Leu Asn Trp  
 233 450 455 460  
 235 Tyr Arg Asn Thr Glu Arg Asn Trp Lys Trp Ser Cys Lys Ala Leu Gly  
 236 465 470 475 480  
 238 Arg Lys Ile Leu Val Pro Ala Leu Met Val Thr Ala Glu Lys Asp Ile  
 239 485 490 495  
 241 Val Leu Arg Pro Glu Met Ser Lys Asn Met Glu Asn Trp Ile Pro Phe  
 242 500 505 510  
 244 Leu Lys Arg Gly His Ile Glu Asp Cys Gly His Trp Thr Gln Ile Glu  
 245 515 520 525  
 247 Lys Pro Ala Glu Val Asn Gln Ile Leu Ile Lys Trp Leu Lys Thr Glu  
 248 530 535 540  
 250 Ile Gln Asn Pro Ser Val Thr Ser Lys Ile  
 251 545 550  
 254 <210> SEQ ID NO: 3  
 255 <211> LENGTH: 554  
 256 <212> TYPE: PRT  
 257 <213> ORGANISM: Mus musculus  
 259 <220> FEATURE:  
 260 <223> OTHER INFORMATION: mouse liver soluble epoxide hydrolase (sEH)  
 262 <400> SEQUENCE: 3  
 263 Met Ala Leu Arg Val Ala Ala Phe Asp Leu Asp Gly Val Leu Ala Leu  
 264 1 5 10 15  
 266 Pro Ser Ile Ala Gly Ala Phe Arg Arg Ser Glu Glu Ala Leu Ala Leu  
 267 20 25 30  
 269 Pro Arg Asp Phe Leu Leu Gly Ala Tyr Gln Thr Glu Phe Pro Glu Gly  
 270 35 40 45  
 272 Pro Thr Glu Gln Leu Met Lys Gly Lys Ile Thr Phe Ser Gln Trp Val  
 273 50 55 60  
 275 Pro Leu Met Asp Glu Ser Tyr Arg Lys Ser Ser Lys Ala Cys Gly Ala  
 276 65 70 75 80  
 278 Asn Leu Pro Glu Asn Phe Ser Ile Ser Gln Ile Phe Ser Gln Ala Met  
 279 85 90 95  
 281 Ala Ala Arg Ser Ile Asn Arg Pro Met Leu Gln Ala Ala Ile Ala Leu  
 282 100 105 110  
 284 Lys Lys Lys Gly Phe Thr Thr Cys Ile Val Thr Asn Asn Trp Leu Asp

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285	115	120	125													
287	Asp	Gly	Asp	Lys	Arg	Asp	Ser	Leu	Ala	Gln	Met	Met	Cys	Glu	Leu	Ser
288	130		135		140											
290	Gln	His	Phe	Asp	Phe	Leu	Ile	Glu	Ser	Cys	Gln	Val	Gly	Met	Ile	Lys
291	145		150		155		160									
293	Pro	Glu	Pro	Gln	Ile	Tyr	Asn	Phe	Leu	Leu	Asp	Thr	Leu	Lys	Ala	Lys
294	165		170		175											
296	Pro	Asn	Glu	Val	Val	Phe	Leu	Asp	Asp	Phe	Gly	Ser	Asn	Leu	Lys	Pro
297	180		185		190											
299	Ala	Arg	Asp	Met	Gly	Met	Val	Thr	Ile	Leu	Val	His	Asn	Thr	Ala	Ser
300	195		200		205											
302	Ala	Leu	Arg	Glu	Leu	Glu	Lys	Val	Thr	Gly	Thr	Gln	Phe	Pro	Glu	Ala
303	210		215		220											
305	Pro	Leu	Pro	Val	Pro	Cys	Asn	Pro	Asn	Asp	Val	Ser	His	Gly	Tyr	Val
306	225		230		235		240									
308	Thr	Val	Lys	Pro	Gly	Ile	Arg	Leu	His	Phe	Val	Glu	Met	Gly	Ser	Gly
309	245		250		255											
311	Pro	Ala	Leu	Cys	Leu	Cys	His	Gly	Phe	Pro	Glu	Ser	Trp	Phe	Ser	Trp
312	260		265		270											
314	Arg	Tyr	Gln	Ile	Pro	Ala	Leu	Ala	Gln	Ala	Gly	Phe	Arg	Val	Leu	Ala
315	275		280		285											
317	Ile	Asp	Met	Lys	Gly	Tyr	Gly	Asp	Ser	Ser	Ser	Pro	Pro	Glu	Ile	Glu
318	290		295		300											
320	Glu	Tyr	Ala	Met	Glu	Leu	Cys	Lys	Glu	Met	Val	Thr	Phe	Leu	Asp	
321	305		310		315		320									
323	Lys	Leu	Gly	Ile	Pro	Gln	Ala	Val	Phe	Ile	Gly	His	Asp	Trp	Ala	Gly
324	325		330		335											
326	Val	Met	Val	Trp	Asn	Met	Ala	Leu	Phe	Tyr	Pro	Glu	Arg	Val	Arg	Ala
327	340		345		350											
329	Val	Ala	Ser	Leu	Asn	Thr	Pro	Phe	Met	Pro	Pro	Asp	Pro	Asp	Val	Ser
330	355		360		365											
332	Pro	Met	Lys	Val	Ile	Arg	Ser	Ile	Pro	Val	Phe	Asn	Tyr	Gln	Leu	Tyr
333	370		375		380											
335	Phe	Gln	Glu	Pro	Gly	Val	Ala	Glu	Ala	Glu	Leu	Glu	Lys	Asn	Met	Ser
336	385		390		395		400									
338	Arg	Thr	Phe	Lys	Ser	Phe	Phe	Arg	Ala	Ser	Asp	Glu	Thr	Gly	Phe	Ile
339	405		410		415											
341	Ala	Val	His	Lys	Ala	Thr	Glu	Ile	Gly	Ile	Leu	Val	Asn	Thr	Pro	
342	420		425		430											
344	Glu	Asp	Pro	Asn	Leu	Ser	Lys	Ile	Thr	Thr	Glu	Glu	Ile	Glu	Phe	
345	435		440		445											
347	Tyr	Ile	Gln	Gln	Phe	Lys	Lys	Thr	Gly	Phe	Arg	Gly	Pro	Leu	Asn	Trp
348	450		455		460											
350	Tyr	Arg	Asn	Thr	Glu	Arg	Asn	Trp	Lys	Trp	Ser	Cys	Lys	Gly	Leu	Gly
351	465		470		475		480									
353	Arg	Lys	Ile	Leu	Val	Pro	Ala	Leu	Met	Val	Thr	Ala	Glu	Lys	Asp	Ile
354	485		490		495											
356	Val	Leu	Arg	Pro	Glu	Met	Ser	Lys	Asn	Met	Glu	Lys	Trp	Ile	Pro	Phe
357	500		505		510											

**VERIFICATION SUMMARY**

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